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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/667,596	09/22/2000	In Duk Song	2658-0190P	8013

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EXAMINER

NGUYEN, HOAN C

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 01/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/667,596

Applicant(s)

YOO ET AL.

Examiner

HOAN C. NGUYEN

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to the amended claim 1, 21 and 23 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

1. Claims 1-4, 7-11, 13-14, 16-19, 21- 25 and 27-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Numano et al. (US6411346B1).

According to claims 1, 2, 7-10, 13, 16-19 and 21-22, Numano et al. teach (Figs. 14 and 15) a liquid crystal display (LCD) device comprising:

- a plurality of gate signal lines 2 formed on a substrate 1;

- a plurality of data/source lines 7 insulating from and intersecting the gate lines, the data lines and intersecting gate lines defining a plurality of cells, at least one cell including:
- a pixel electrode formed metallic pattern connecting the storage electrode to the drain electrode (claim 22).
- a thin film transistor (TFT) connecting to one of the data lines and one of gate lines defining the cell,
- a storage capacitor having storage electrode;
- a metallic pattern 8 including drain electrode of TFT and storage electrode of the storage capacitor and being electrically connected to the pixel electrode 12;

wherein metallic pattern is spaced a predetermined distance from the data line via the gate insulating layer 4;

- a protective layer 10 disposed between the pixel electrode and the metallic pattern,

wherein the pixel electrode is connected to a storage electrode part of metallic pattern via a first contact hole in the protective layer without including contact hole over a drain electrode (claims 7 and 8), and the drain electrode part has a smaller area than if the drain electrode part was electrically connected to the pixel electrode via a contact hole in the protective layer over the drain electrode (claim 9); the pixel electrode 139 has a larger aspect ratio than (expanding further into TFT region) if the drain electrode part was

electrically connected to the pixel via a contact in the protective layer over the drain electrode (claim 10)

or

wherein, in the different forming process, the pixel electrode is connected to a drain electrode part of metallic pattern via a contact hole in the protective layer without concluding contact hole over a storage electrode, and the pixel electrode overlaps a gate lines less than if the protective layer included a contact hole over a storage electrode part of the metallic pattern.

According to claims 23, 25, 27-31, Numano et al. teach (Figs. 2-5, 14 and 15) a method of manufacturing a TFT substrate comprising:

- forming a plurality of gate signal lines 2 having gate electrode on a transparent/glass substrate 1;
- forming a gate insulating layer 4 on the gate electrode;
- forming a semiconductor layer 5/6 on the gate insulating layer;
- forming a data/source line 7 having a source electrode 7, and a metallic pattern 8 including drain electrode part of TFT and storage electrode part of the storage capacitor;
- forming a semiconductor over at least a portion of one of the gate electrodes, at least a portion of one of the source electrode, and at least a portion of the drain electrode part in a single layer;

- forming a protecting film 10 over the entire surface with a first contact hole 175 (exposing the storage electrode part of the metallic pattern (claim 27), and a second contact hole exposing the drain electrode part of the metallic pattern (claims 29 and 30)
- forming a pixel electrode 12 over the protective film;

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 5-6, 12, 15, 20 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Numano et al. (US6411346B1) as applied to claims 1, 21 and 23, in view of Kim et al. (US5995175A).

Kim et al. disclose (Figs. 7 and 11) storage electrodes overlapped with a portion of a periphery of the pixel electrode for increase the aperture ratio and contrast ratio of the LCD as compared with the conventional LCD.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOAN C. NGUYEN whose telephone number is (703)

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306-0472. The examiner can normally be reached on MONDAY-THURSDAY:8:00AM-4:30PM.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

HOAN C. NGUYEN
Examiner
Art Unit 2871

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January 15, 2003



TOANTON
PRIMARY EXAMINER